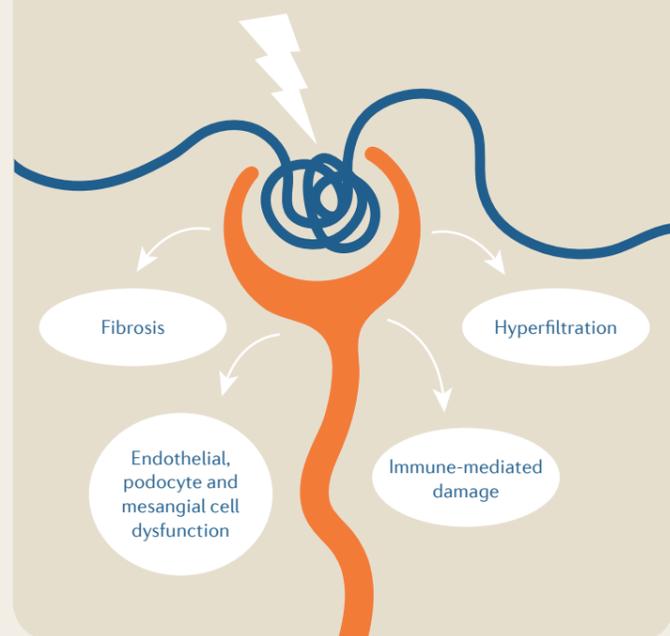


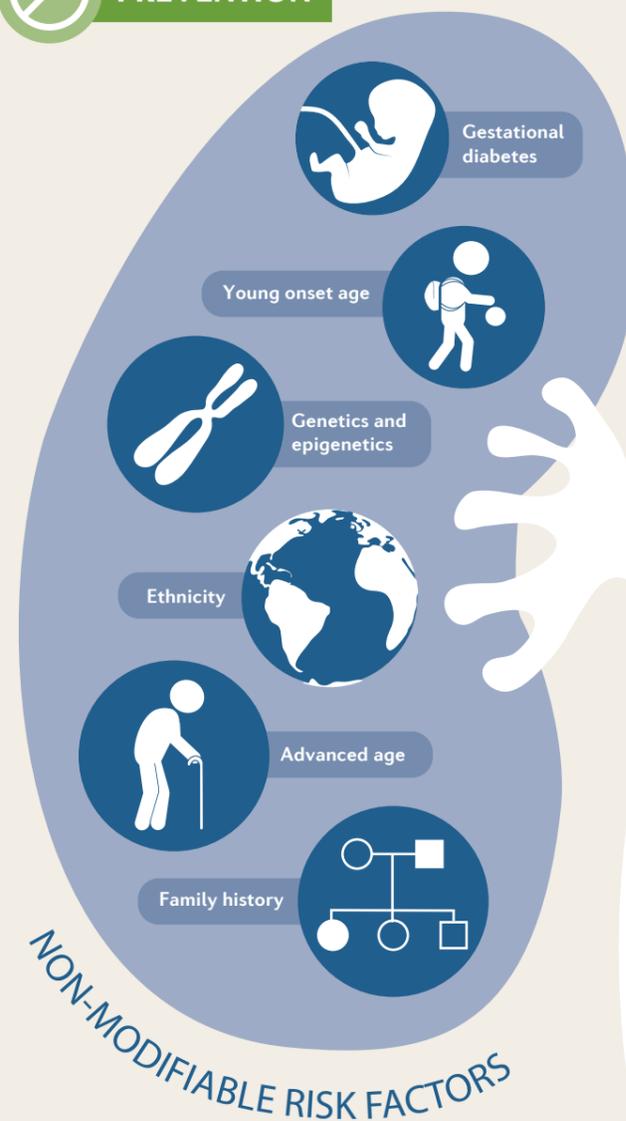
→ Diabetic kidney disease (DKD) arises from microvascular damage sustained during diabetes and will affect approximately one-third of patients with type 1 diabetes and half of patients with type 2 diabetes.

MECHANISMS

DKD is caused by a number of interlinked processes associated with increased blood glucose levels, elevated blood pressure, altered insulin signalling and dyslipidaemia — all characteristic features of diabetes. Although many aspects of renal biology can be affected, of major importance to DKD is microvascular damage in the form of reactive oxygen species (ROS)-mediated endothelial cell dysfunction, apoptosis and inflammation. In addition, a range of functional and morphological changes to the cells and structures that form the renal filtration system in the glomerulus, glomerular hyperfiltration as a result of changes in haemodynamics and renal tubulointerstitial fibrosis also contribute to the progressive decline in kidney function in DKD.



PREVENTION



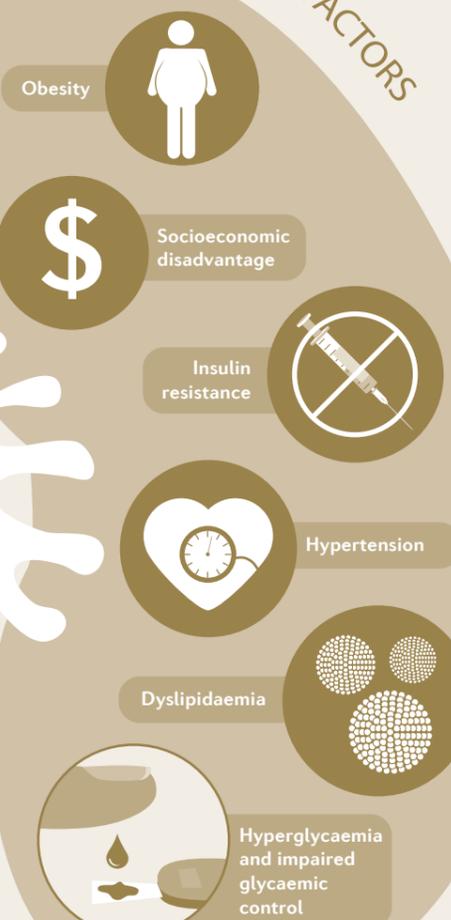
OUTLOOK

The number of patients affected by DKD is rising owing to both an increase in diabetes prevalence and improved survival of patients with diabetes, which makes the development of long-term

chronic complications more common. Consequently, in the future, DKD is likely to have an ever greater impact on individuals and health systems. Basic and clinical research

aimed at prevention along with novel strategies to halt and reverse disease progression are vital if the current outlook for patients with DKD is to be significantly improved.

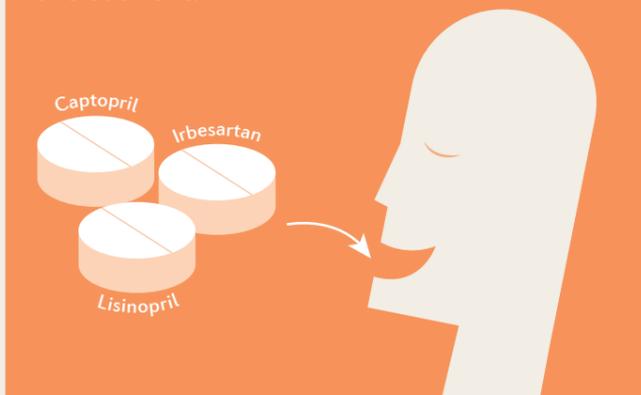
MODIFIABLE RISK FACTORS



Even short periods of hyperglycaemia or hypoglycaemia might substantially increase the risk of developing DKD

Rx MANAGEMENT

The management of patients with DKD involves a complex balancing act aimed at minimizing the effects of diabetes-associated factors that cause renal damage. Although a multifaceted strategy — including diet and lifestyle interventions as well as drug treatments to control blood glucose and lipid levels — is often used, the most efficacious treatment is blood pressure control. Of the antihypertensive agents available, angiotensin-converting enzyme inhibitors and angiotensin receptor blockers, which target the renin-angiotensin-aldosterone system, have the greatest renoprotective effects. Renal replacement therapy, in the form of dialysis or kidney transplantation, remains the last line of treatment.



QUALITY OF LIFE

Quality of life for patients with DKD is impaired by fatigue, immune dysfunction and, ultimately, the risk of end-stage renal disease. Additionally, the interventions involved in the management of diabetes, DKD and their complications often have a profound impact on patient well-being through onerous lifestyle restrictions, continuous and intensive management and the adverse events that result from interactions between different treatments.